

REMARKS

Interview Summary

On December 1, 2006, an interview was conducted between Examiner Philippe and Marc S. Hanish, Reg. No. 42,626. The Examiner is kindly thanked for granting this interview. During this interview, the Fukuda reference was discussed. Specifically, Applicant noted that Fukuda fails to teach or suggest finding zero pattern information across rows and performing one-dimensional transforms across rows, in that Fukuda only suggested performing such action across rows. The Examiner disagreed, arguing that Col. 14, lines 55-59 indicates that Fukuda transposes rows and columns, thus making the same processes applied to columns also apply to rows. No agreement was reached.

Response to Office Action

The Examiner rejected claims 1-3, 6, 8-13, 16, 18,20, 23-26 and 19-23 under 35 U.S.C. 103(a) as being unpatentable over Fukuda (U.S. Patent No. 6,549,667) in view of Brooks et al. (U.S. Patent No. 7,114,174).

Applicant notes that the rejection indicates that Claim 1 is rejected under 35 U.S.C. 103(a) over Fukuda in view of Brooks, in part, because Fukuda allegedly teaches “identifying zero patterns in the block of transform coefficients to derive zero pattern information, wherein identifying zero pattern comprises determining the location of zero values or near zero values for multiple rows and for multiple columns in the block of transform coefficients (See FIG. 13, location of zero values, which are tracked by control flags A and B in FIG. 16A-B); and performing one-dimensional inverse transform on a subset of a total number of rows and column in the block of transform coefficients by using zero pattern information (see col. 10, line 18-38).” (See Office Action, page 3). This rejection, however, does not take into account the last amendment. Specifically, in the last amendment, claim 1 was amended to remove the “and for multiple columns” of the former element, and the “and columns” of the latter element. In other words, claim 1 was amended to recite row processing a subset of rows and rescaling to meet bandwidth constraints, without any reference to performing one-dimensional inverse transforms on a subset of the total number of columns or identifying zero values or near zero values for

multiple columns. Since the rejection does not refer to a current version of the claims, it is difficult to respond completely. Nevertheless, Applicant will attempt to do so in light of the comments made by the Examiner during the interview.

Applicant also notes that the Final Office Action utilizes the same arguments with respect to Fukuda allegedly teaching the first two elements of claim 1 as the previous Office Action. Unfortunately, the Examiner has ignored the arguments made by Applicant in the last amendment, claiming that these arguments are “moot” in light of the new grounds of rejection. However, these arguments are in fact not moot, as the exact same art was used to reject the elements in the prior Office Action. Since the Applicants arguments of record have not been formally addressed, Applicant respectfully submits that the finality of the current Office Action is improper, and respectfully requests reconsideration of the determination of the last Office Action.

Nevertheless, Fukuda fails to teach or suggest “identifying zero patterns across rows in the block of transform coefficients to derive zero pattern information, wherein identifying zero patterns comprises determining the location of zero values or near zero values for multiple rows in the block of transform coefficients” or “performing one dimensional inverse transforms on a subset of the total number of rows in the block of transform coefficients by using zero pattern information.” Specifically, Fukuda teaches identifying columns having all zeros and placing this information in control flags.

Referring to FIG. 14 and Col. 9, lines 7-57 in Fukuda, it can be seen that the invention in Fukuda steps loops through the columns and identifies whether each column contains only non-zero coefficients. It then places this information in control block A, as can be seen in FIG. 13A, with a “1” in an array position if the corresponding column has at least one non-zero coefficient, and a “0” in the array entry if the corresponding column has only zeros. Control block B is similar, except it contains a “1” in the array position if the last half of the corresponding column contains only zero coefficients, and a “0” in the array entry if the last half of the corresponding column contains at least one non-zero coefficient (See FIG. 13B).

An example of this is provided in FIGS. 15-16B and the corresponding text. Looking at for example, the first array entry in control flag A as depicted in FIG. 16A, this entry contains a “1” because the first column of the coefficient block in FIG. 15 contains at least one non-zero coefficient. Likewise, the first array entry in control flag B as depicted in FIG. 16B contains a

“0” because the last half of the first column of the coefficient block in FIG. 15 contains at least one non-zero coefficient.

In other words, Fukuda describes finding zero patterns in columns and processing the columns based upon these zero patterns. It does not describe finding zero patterns in rows and processing the rows based upon these zero patterns. As such, it fails to teach or suggest elements of claim 1, as previously amended.

The Examiner pointed to Column 14, lines 55-59 of Fukuta during the interview as allegedly teaching that the transposition of columns and rows by Fukuta indicates that it teaches identifying zero pattern information across rows and also performing one-dimensional transforms across rows. After performing an additional review of Fukuta, Applicant respectfully disagrees.

This section of Fukuta is describing the performance of a two-dimensional orthogonal transform (see Col. 14, lines 10-18). Ordinarily in two-dimensional orthogonal transforms, a first one-dimensional transform is performed on the columns, and the results placed in a matrix. Then a transposition operation is performed on the matrix to turn the resulting columns into rows and vice-versa. Then a second one-dimensional transform is performed on the columns of this resulting matrix. Fukuta describes an invention wherein the step of transposing the resulting matrix is eliminated by combining the transposition step with the first one-dimensional orthogonal transform operation. (“For instance, the results of the first one-dimensional inverse transforms in the respective columns are outputted as the corresponding row elements of the transposed matrix” Col. 14, lines 33-35; “Hence it becomes possible to eliminate the process for transposing the result of the first one-dimensional inverse orthogonal transform in performing the second one-dimensional inverse orthogonal transform” Col. 14, lines 59-63.) Therefore, at no time does Fukuta teach performing one-dimensional transforms on rows of a matrix. Nor does Fukuta at any time teach performing a one-dimensional transform on rows using zero pattern information across rows. Claims 1, 11, 24, and 34 have been amended to make this distinction more clear.

Independent claims 11, 24 and 34 contain elements similar to that as described above with respect to claim 1. As such, Applicant respectfully submits that these claims are in condition for allowance for the same reasons as described above with respect to claim 1.

Dependent claims 2-3, 6, 8-10, 12-13, 16, 18-20, 23, 25-26, 29-33 are also patentably distinct from the cited references for at least the same reasons as those recited above for the independent claim, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references. For at least these reasons, claims 2-3, 6, 8-10, 12-13, 16, 18-20, 23, 25-26, 29-33 are not anticipated or made obvious by the prior art outlined in the Office Action.

The Examiner rejected claims 34-36 and 40-43 under 35 U.S.C. 103(a) as being unpatentable over Fukuda (U.S. Patent No. 6,549,667) in view of Brooks et al. (U.S. Patent No. 7,114,174).

Dependent claims 35-36 and 40-43 are also patentably distinct from the cited references for at least the same reasons as those recited above for the independent claim, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references. For at least these reasons, claims 35-36 and 40-43 are not anticipated or made obvious by the prior art outlined in the Office Action.

The Examiner rejected claim 21 under 35 U.S.C. 103(a) as being unpatentable over Fukuda (U.S. Patent No. 6,549,667) in view of Brooks et al. (U.S. Patent No. 7,114,174) as applied to claim 11 above, and further in view of Lee (U.S. Patent No. 6,763,070).

Dependent claim 21 is also patentably distinct from the cited references for at least the same reasons as those recited above for the independent claim, upon which they ultimately depend. This dependent claim recites additional limitations that further distinguish this dependent claim from the cited references. For at least these reasons, claim 21 is not anticipated or made obvious by the prior art outlined in the Office Action.

Additionally, new claims 44-46 describe identifying zero pattern information across columns and performing a one-dimensional transform on such columns using the column zero pattern information. Thus, taking into account the respective independent claims, such dependent claims now describe performing separate one-dimensional transforms on rows versus on columns, and using different zero pattern information in each. Thus, even if prior art is found teaching either performing one-dimensional transforms on columns or on rows, the prior art would fail to teach these additional claims unless is described an embodiment where one-dimensional transforms are performed on both columns and rows.

Applicants believe that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Applicant also believes that this amendment places the claims in better condition for appeal. Therefore, even if the Examiner maintains the existing rejection, Applicant respectfully requests that the amendment be entered so that a timely appeal can be filed.

Respectfully submitted,
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